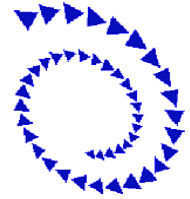


Chapter 6.4 POLLUTION PREVENTION (P2) and ENVIRONMENTAL MANAGEMENT SYSTEMS

Pollution prevention (or P2) is recognized by the US EPA as the most cost-effective form of environmental protection, because it is an environmental management strategy that emphasizes the elimination or reduction of wastes **at the source of generation**. Whereas traditional waste management techniques such as treatment and disposal concentrate on managing wastes, P2 focuses on the question, **"Why are the wastes produced in the first place?"**



Treatment, handling, and disposal of wastes can result in significant financial and labor costs, and involve regulatory and compliance issues. P2 techniques can offer companies the opportunity to reduce or eliminate these costs, while lessening their regulatory burden and decreasing environmental impacts.

Going Beyond Compliance. Environmental regulations are legally enforceable standards and rules, which place limits on environmental impacts from business and other activities. However, they are based on a system of "permitted thresholds", which allow a certain degree of impact. Pollution prevention, although not legally required, provides the opportunity for businesses and others to move voluntarily beyond mere compliance; to continually strive to do better, year after year; and move well below the enforceable thresholds of regulations. Cost savings, not regulatory enforcement, drive reductions through P2.

Environmental Management Systems. Many forward-thinking companies that understand the value of P2 have realized that the impact of their operations on the environment is a significant factor that affects the very success or failure of their organization. These facilities have developed "environmental management systems" (EMS's) to ensure that the environment is considered in all facets of the company's operations. In addition, a good EMS sets goals for implementation of P2 and other projects that will enable "continuous improvements" in the company's environmental performance. Theoretically, a facility that continuously improves will move beyond compliance towards a conceptual goal of "no net impact" on the environment.

Cost Savings & Environmental Benefits? Through P2 techniques, facilities can eliminate or significantly decrease the quantity and/or toxicity of their generated wastes. Facilities can avoid the direct costs and long-term liabilities associated with producing and managing those wastes. Source reduction techniques often result in increased **production efficiencies** which can actually decrease raw material purchasing needs.

Wastes are essentially wasted raw materials, and P2 efforts strive to conserve the use of raw materials by using them as efficiently as possible. In addition, P2 stresses the reduction of toxicity, and prevention of spills and raw material/product losses. P2 or source reduction is distinguished from recycling and reuse efforts, because these management techniques involve waste handling, collection, and reprocessing into a new raw material or useable product. True source reduction eliminates the need and the costs associated with handling wastes.

Where Does P2 Focus? P2 techniques are proactive approaches and solutions to waste management issues and problems. Categories include process efficiency improvements, materials substitution, inventory control, preventive maintenance, energy and water conservation, in-process recycling, and office waste reduction. These techniques may involve complex capital upgrades for new equipment and computerized automation of monitoring equipment. However, many P2 techniques are as simple as using less-toxic raw materials or changing certain facility procedures.




What Does P2 Mean for Water Quality? P2 techniques result in the decreased use of hazardous materials and decreased generation of wastes. P2 uses a multi-media approach which considers water use and quality as well; and it ensures that air and waste problems are not "solved" by treatment processes that result in impacts to water. P2's emphasis on source reduction is directly applicable to water use reduction techniques that enable more efficient use, conservation, and reuse. In the case of stormwater runoff, the P2 techniques of "material substitution" and "improved efficiencies" encourage the use of the least toxic pesticides and herbicides and the prudent use of fertilizers and nutrients.

Compliance with environmental regulations and permit requirements may help to sustain water quality where it is; however, it will not result in long-term improvements and it will not allow for long-term economic growth at the same time. Pollution prevention techniques, however, will allow these improvements to take place simultaneously. In fact, voluntary P2 is viewed by grass-roots efforts, such as the Chesapeake Bay Program, as an integral key to long-term improvements to water quality.

DEQ's Office of Pollution Prevention

The Virginia DEQ's Office of Pollution Prevention (OPP) is a non-regulatory program that promotes the use of voluntary pollution prevention approaches and technologies and the use of Environmental Management Systems. OPP has developed a variety of voluntary programs and partnerships to create opportunities for directed technical assistance, awards, and public recognition. OPP staff also provides outreach services such as training, informational services (www.deq.state.va.us/p2), public recognition, voluntary programs, and sector-based initiatives.

Voluntary Programs

- ♦ **Virginia Environmental Excellence Program (VEEP)** is DEQ's program (EMS) to promote the use of environmental management systems and pollution prevention (P2). A voluntary program which offers Facilities recognition and incentives to facilities adopting EMS and P2. with a comprehensive EMS, P2 achievements, and a good compliance history qualify f as an "Exemplary Environmental Enterprise" or "E3" facility. The program also the "E2" designation, or "Environmental Enterprise" which recognizes facilities that have the framework in place for an EMS and a working P2 plan. There are currently 18 E3 facilities and more than 140 E2 facilities in Virginia. <http://www.deq.state.va.us/veep>
- ♦ **Waste Minimization Assistance.** Through its relationship with EPA Region III, Virginia provides P2 and waste minimization technical assistance services. EPA's Waste Minimization Program www.epa.gov/reg3wcmd/wasteminization.htm and the Waste Reduction Resource Center wrrc.p2pays.org are available to provide on-site assistance and perform P2 opportunity assessments.
- ♦ **Virginia Hospitals for a Healthy Environment (VH2E)** is a partnership to educate Virginia health care professionals about the significant environmental impacts of their industry and the many (P2) opportunities that are available to hospitals and other health care facilities. VH2E facilities are committing to (1) eliminate mercury, (2) reduce wastes, and (3) reduce the toxicity of wastes. <http://www.deq.state.va.us/vh2e>
- ♦ **Businesses for the Bay, or B4Bay** is a voluntary team of businesses, industries, facilities and other organizations within the Chesapeake Bay watershed Organized government in Virginia by DEQ. The goal is to reduce releases of chemical contaminants and use that wastes to the Chesapeake Bay through P2. B4Bay facilities have committed to P2 to minimize environmental impacts. Virginia has more than 240 participants that have reduced more than 2.5 billion pounds of wastes and saved more than \$50 million. For more information on B4Bay, reference <http://www.chesapeakebay.net/b4bay.htm> or contact Marylynn Wilhere at 1-800-YOURBAY.
- ♦ **Mercury Reduction.** Mercury is at the top of EPA's lists of "PBT's", and therefore, poses a great risk to the environment and the public. The VA DEQ works to promote and coordinate efforts to reduce or eliminate the use of mercury containing products. DEQ has coordinated reduction efforts addressing mercury in dental offices, schools laboratories, thermometers, fluorescent light bulbs, and thermostats.
- ♦ **DoD P2 Partnership.** On 10/19/00, the Commonwealth of Virginia, the Virginia DEQ, the US EPA, and the US Department of Defense entered into a landmark Pollution Prevention Charter. The P2 Charter commits to cooperative projects which further the P2 goals of the Commonwealth and the Nation. Participating facilities are now working on the development of Environmental Management Systems.
- ♦ **VA Clean Marinas** OPP worked closely with the Virginia Clean Marinas Program to ensure that P2 and EMS concepts are effectively included in the "clean marina" designation. Therefore, DEQ has determined that a "clean marina" will automatically qualify as an E2 facility in the VEEP program. <http://www.deq.state.va.us/vacleanmarina>
- ♦ **environmentaLodging** is the DEQ's initiative to promote pollution prevention (P2) practices in the tourism and hospitality industry. *environmentaLodging* encourages hotels, resorts, and other hospitality operations to be aware of their impact on the environment and reduce these impacts. More than 20 Virginia facilities are now certified. <http://www.deq.state.va.us/p2/lodging>

- ◆ **Ecycling** is a partnership among EPA Region III, states to recycle unwanted computers, computer equipment, and televisions. The project sponsors collection events with localities to help establish an electronics recycling markets. <http://www.deq.state.va.us/recycle/computer.html>
- ◆ **Energy Efficiency & Renewable Energy Technologies** are important to Virginia's environmental and economic health. Conventional energy produced from the burning of fossil fuels results in pollutants being emitted to the air. Conservation and the promotion of cleaner renewable energy technologies can reduce the environmental impact of Virginia's energy needs.
- ◆ **Virginia Mentoring Network (VMN).** Mentors are individuals who have voluntarily committed to provide free assistance and insight on various environmental topics, such as P2, environmental management systems, or regulatory issues. <http://www.deq.state.va.us/vmn/vmnmain.htm>
- ◆ **Success Stories / Fact Sheets** are brief reports documenting VA companies that have made significant P2 accomplishments. Success stories provide quick positive public recognition for P2 achievements. Facilities can use fact sheets to assist in the promotion of their activities.

For more information on DEQ's P2 and EMS programs, contact Tom Griffin at 804-698-4545 or rtgriffin@deq.state.va.us.